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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,336	05/01/2001	Toshiya Uemura	PW 280291 T36-131965M/KOH	2254
7590 11/17/2003 MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			EXAMINER SCHILLINGER, LAURA M	
			ART UNIT 2813	PAPER NUMBER

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/845,336

Applicant(s)

UEMURA ET AL.

Examiner

Laura M Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Shakuda ('029).

In reference to claim 1, Shakuda teaches a device comprising:

A semiconductor laminate portion including a light emitting layer (26) (Fig.1 (B) layers 24-28);

A reflection surface disposed so as to be opposite to a side surface of the light emitting layer (Fig.1 (d)- trench sides, see also Col.8, lines: 40-52- mirror surfaces);

Wherein the semiconductor laminate portion and the reflection surface are provided in the same chip (Col.8, lines: 60-68).

In reference to claim 2, Shakuda teaches wherein the reflection surface reflects light from one side surface of the laminate portion into a direction of an optical axis of the light emitting device (Col.8, lines: 45-50).

In reference to claim 3, Shakuda teaches wherein a distance between the reflection surface and the side surface is in a range of 0.1 to 10 um (Col.8, line: 66).

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In reference to claim 4, Shakuda teaches wherein the reflection surface comprises a material which is the same as the n pad electrode (Col.8, lines: 50-55).

In reference to claim 5, Shakuda teaches wherein a portion of the n pad electrode opposite to the side surface of the laminate portion from a second reflection surface (Fig.1(d)).

In reference to claim 6, Shakuda teaches wherein the reflection surface is formed on an n-type semiconductor layer which is formed by etching to a first depth and the n pad electrode is formed on the n-type semiconductor layer which is formed by etching to a second depth shallower than the first depth (Col.8, lines: 40-50 and lines: 57-64).

In reference to claim 7, Shakuda teaches wherein the reflection surface is formed integrally with the n pad electrode (Col.8, lines: 40-60).

In reference to claim 8, Shakuda teaches a device comprising:

A plurality of group III nitride compound layers comprising a light emitting layer (Fig.1 (b) layers 24-28);

A groove formed in the plurality of the group III nitride semiconductor layers (Fig. 1 (d)); and

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A reflection surface formed on an outer side surface of the groove, the reflection surface being disposed opposite to a side surface of the light emitting layer ((Fig.1 (d) and Col.8, lines: 40-52).

In reference to claim 9, Shakuda teaches wherein the groove is formed by a dicing saw (Col.9, lines: 50-57).

In reference to claim 10, Shakuda teaches wherein the reflection surface includes a metal layer (Col.8, lines: 50-55).

In reference to claim 11, Shakuda teaches wherein the metal layer is made of a material which is the same as that of an n pad electrode and the metal layer is formed at the same time the n pad electrode is formed (Col.8, lines: 50-55).

In reference to claim 12, Shakuda teaches wherein light emitted from a side surface of the laminate is reflected by the reflected surface in a direction of an optical axis of the LED (Col.8, lines: 45-50).

In reference to claim 13, Shakuda teaches wherein the plurality of group III nitride compound layers further comprises a substrate, a bottom of the groove being defined by the substrate (Fig.1(d) (21)).

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In reference to claim 14, Shakuda teaches wherein the groove is substantially parallel to the chip cutting line (Col.8, lines: 60-68).

In reference to claim 15, Shakuda teaches wherein the distance between the reflection surface and the side surface is in a range of 0.2 um to 7 um (Col.8, lines: 65-68).

In reference to claim 16, Shakuda teaches wherein the distance between the reflection surface and the side surface is in a range of 0.3 um to 5 um (Col.8, lines: 65-68).

In reference to claim 17, Shakuda teaches wherein the reflection surface is formed on a layer in the laminate portion (Col.9, lines: 40-60).

In reference to claim 18, Shakuda teaches wherein an upper surface of the reflection surface is elevated higher than the light emitting layer (Compare the groove of Fig.1(d) to layer 26)).

In reference to claim 19, Shakuda teaches wherein the reflection surface comprises a curved reflection surface (Fig.1 (d), the wafer/chip dimensions shown are a cross section of a circular substrate).

In reference to claim 20, Shakuda teaches wherein the width of the groove is 3 um to 50 um (Col.8, lines: 60-68).

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In reference to claim 21, Shakuda teaches wherein the width of the groove is 3 um to 50 um (Col.8, lines: 60-68).

In reference to claim 22, Shakuda teaches wherein at least a portion of the reflector surface lies in the same plane as a portion of the light emitting layer (Compare the groove of Fig.1 (d) to layer 26)).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

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advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (703) 308-4940. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

LMS

November 5, 2003

  
CARL WHITEHEAD, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800